

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An analog to digital converter, comprising:

a plurality of comparators, each comparator for comparing an input electrical signal with a respective, pre-selected reference electrical signal, each comparator comprising a comparator for comparing a voltage of the input electrical signal with a voltage of the respective reference electrical signal, the respective reference electrical signal having a pre-selected voltage;

an encoder coupled to the comparators to receive a detection signal from each comparator indicative of a voltage of the input signal; and

a plurality of reference circuits, each reference circuit coupled to a respective one of the plurality of comparators to supply the respective reference electrical signal to the respective comparator, each reference circuit comprising

an output transistor to provide the reference electrical signal;

a current source coupled between an emitter of the output transistor and ground;

a reference resistor coupled to a base of the output

transistor to set an operation current of the output transistor;

a control transistor coupled to the reference resistor in parallel with the output transistor to allow current flow through the reference resistor; and

a current mirror coupled in parallel with the reference resistor and control transistor to control the current flowing through the reference resistor.

2. (canceled)

3. (canceled)

4. (canceled)

5. (currently amended) The analog to digital converter of claim [[4]] 1, wherein the current mirror comprises:

a resistor coupled in series with a transistor.

6. (currently amended) The analog to digital converter of claim [[3]] 1, wherein each reference circuit comprises:

an emitter follower circuit.

7. (currently amended) The analog to digital converter of claim [[4]] 1, wherein the current mirror comprises:

a trans-admittance amplifier coupled in series with a transistor.

8. (currently amended) The analog to digital converter of claim [[3]] 1, wherein each reference circuit comprises:

an output transistor to provide the reference electrical signal;

a current source coupled between an emitter of the output transistor and ground;

a reference resistor coupled to a base of the output transistor to set an operation current of the output transistor;

a control transistor coupled to the reference resistor in parallel with the output transistor to allow current flow through the reference resistor; and

a trans-admittance amplifier coupled to the base of the control transistor to control the current flowing through the reference resistor.

9. (currently amended) A method for digitizing an analog signal, comprising:

generating a plurality of predetermined reference

electrical signals by applying a supply voltage to each of a plurality of reference circuits, each reference circuit comprising an output transistor to provide the reference electrical signal, a current source coupled between an emitter of the output transistor and ground, a reference resistor coupled to a base of the output transistor to set an operation current of the output transistor, a control transistor coupled to the reference resistor in parallel with the output transistor to allow current flow through the reference resistor, and a current mirror coupled in parallel with the reference resistor and control transistor to control the current through the reference resistor, the current mirror comprising a trans-admittance amplifier coupled in series with a transistor, and applying a preselected control current to each trans-admittance amplifier to control the current flowing through the respective reference resistor to cause the respective output transistor to provide the respective reference electrical signal at a respective preselected voltage;

supplying each reference electrical signal to a respective one of a plurality of comparators;

supplying an input electrical signal to each one of the comparators to compare the input electrical signal with the respective reference electrical signal and to provide a detection signal indicative of a voltage of the input electrical signal; and

providing each detection signal from each comparator to an encoder arranged to output a signal indicative of a magnitude of the input electrical signal.

10. (canceled)

11. (canceled)

12. (canceled)

13. (canceled)

14. (currently amended) The method of claim 12 for digitizing an analog signal, wherein generating each predetermined reference electrical signal comprises comprising:

generating a plurality of predetermined reference electrical signals by applying the supply voltage to each of a plurality of reference circuits, each reference circuit comprising an output transistor to provide the reference electrical signal, a current source coupled between an emitter of the output transistor and ground, a reference resistor coupled to a base of the output transistor to set an operation current of the output transistor, a control transistor coupled to the reference resistor in parallel with the output transistor to allow current flow through the reference resistor, and a trans-admittance amplifier coupled to the base of the control transistor to control the current through the reference resistor[[:]], and applying a preselected control current to the

each trans-admittance amplifier to control the current flowing through the respective reference resistor to cause the respective output transistor to provide the respective reference electrical signal at the a respective preselected voltage;

supplying each reference electrical signal to a respective one of a plurality of comparators;

supplying an input electrical signal to each one of the comparators to compare the input electrical signal with the respective reference electrical signal and to provide a detection signal indicative of a voltage of the input electrical signal; and

providing each detection signal from each comparator to an encoder arranged to output a signal indicative of a magnitude of the input electrical signal.